



**MINISTRY OF AGRICULTURE, ANIMAL
INDUSTRY AND FISHERIES**

NATIONAL SEED POLICY

DRAFT 6

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ACRONYMS AND ABBREVIATIONS

ARIPO	African Regional Intellectual Property Organization
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
CAADP	Comprehensive Africa Agriculture Development Programme
COMESA	Common Market for Eastern, Central & Southern Africa
CGIAR	Consultative Group on International Agricultural Research
EAC	East African Community
DCIC	Department of Crop Inspection and Certification
DSIP	Development Strategy and Investment Plan
FAO	Food and Agriculture Organisation
GMO's	Genetically Modified Organisms
IPPC	International Plant Protection Convention
ISTA	International Seed Testing Association
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
MT	Metric Tons
NAADS	National Agricultural Advisory Services
NAP	National Agricultural Policy
NARO	National Agricultural Research Organization
NARS	National Agricultural Research System
NDP	National Development Plan
NGO	Non-Governmental Organization
NPPO	National Plant Protection Organisation
NSA	National Seed Authority
NSB	National Seed Board
NSP	National Seed Policy
NSCS	National Seed Certification Service
OECD	Organization for Economic Cooperation and Development
PGRFA	Plant Genetic Resources for Food and Agriculture
PPO	Plant Protection Organisation
QDPM	Quality Declared Planting Material
QDS	Quality Declared Seed
QSGA	Quality Seed Growers Associations
SADC	Southern Africa Development Community
SSIIMS	Seed Sector Integrated Information Management System
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights
UBOS	Uganda Bureau of Statistics
UNCST	Uganda National Council of Science and Technology
USIIS	Uganda Seed Sector Integrated Information Management System
UPOV	International Union for the Protection of New Varieties of Plants
WTO	World Trade Organization
ZARDI	Zonal Agricultural Research Institutes

FORWARD

The crop subsector plays a key role in the socio-economic development of Uganda and is source of livelihood for 75% of the country's population. It provides food, employment; export revenue as well as on- and off- farm income to farming households and other commercial actors like processors, traders and transporters. The potential of the country's crop subsector is very high, given Uganda's competitive advantage in the region, in terms of its favourable agro-ecological conditions and its strategic location to serve the East African Community (EAC) and also South Sudan and Eastern Democratic Republic of Congo.

Smallholder farmers, characterized by a low input low output production system, dominate Uganda's agricultural production. Planning for agricultural production is limited to niche export markets like organic and fair trade and other certification schemes, leaving most smallholder farmers, including women, to continue with unplanned production and unstructured marketing systems.

Existing policy documents on the agricultural sector have not given deserving emphasis to seed, despite being the most important input on which other inputs depend for improved productivity and production. It is seed that interlinks cultivation, conservation, consumption, commercialization and agricultural development. This policy puts seed in its proper place. It is time for Uganda to address all shortcomings in the seed sector and create an ecologically and financially sustainable seed industry that will cater for the needs of smallholder farmers, emerging commercial agriculture, and regional markets demands.

The seed policy has been developed to provide a formal framework, upon which the seed industry will develop in line with the Government of Uganda's objective of wealth creation, into an export oriented seed sector targeting the Ugandan as well as the regional markets of EAC and Common Market for Eastern, Central & Southern Africa (COMESA).

The seed policy has been developed through a consultative and participatory process, with key stakeholders including researchers, seed companies, civil society, farmers, development partners, and the Ministry of Agriculture Animal Industry and Fisheries (MAAIF). It also involved reviewing legal and policy documents relevant to the agricultural sector in general and the seed industry in particular. The key principle that informed the development of the

policy is that the private sector is the commercial player, while government provides an enabling environment for the seedsector. The government will support all efforts to stimulate private sector innovative approaches to develop a competitive regional seed industry.

I wish to acknowledge the efforts of all stakeholders who contributed to the preparation of this policy. It is my sincere conviction that all of us will provide the necessary support, to make implementation of this seed policy a success.

.....
MINISTER OF AGRICULTURE, ANIMAL INDUSTRY AND FISHERIES

ENTEBBE

September 2014

1 INTRODUCTION AND BACKGROUND

1.1 Agriculture and Ugandan Economy

The Uganda Census of Agriculture (2008/09) states that agriculture is a “source of livelihood for over ¾ of the population”. This makes agriculture Uganda’s dominant sector for economic growth, employment and household livelihood. In 2010, the agricultural sector dominated exports at 46% of total export earnings and provided employment to 65% of the total population (UBOS 2011). Agriculture is also the resource base for the country’s industrial sector.

According to UBOS (2010), over 80% of the country’s 5 million households are dependent on agriculture. Smallholder farmers dominate the sector with an average land holding size of 1.1 ha and practicing low input low output farming systems. Agricultural households are segmented into three categories: commercial farmers 5%, semi-commercial farmers 27%, and smallholder (mostly subsistence) 68% farmers where women play a significant role. Uganda aims at transforming the 68% subsistence agriculture households to commercial agriculture.

Over the past one and a half decades, Uganda achieved an average economic growth of about 6% per annum, while agricultural growth decreased from 7.9% to 1.3% between 2000/01 and 2007/08. Most of the growth achieved in the agricultural sector is attributed to increase in cultivated area and not improved resource productivity. Only 13% of planted area is planted with seed from seed companies and out of this 25% comprises maize seed. There is minimal use of external inputs like inorganic fertilisers estimated at 1kg/ha/year (MAAIF DSIP-FIP, 2012) compared to 35kg/ha/year in Kenya and 13kg/ha/year in Tanzania, which limits transformation of Uganda’s smallholder agriculture into commercial agriculture. This continues to degrade the natural resource base of the country, like forests and wet lands in search of more fertile land. Uganda has one of the highest rates of soil nutrient depletion among countries in sub-Saharan Africa. As a result, food insecurity remains a problem for an estimated 66% of the population according to 2005/06 figures.

Finally, post-harvest handling and food safety system are weak, with lax enforcement of agricultural produce quality standards (except for the traditional export crops of coffee, cotton and tea); and absence of certification system for food quality, safety, and sanitary and

phytosanitary standards (SPS). A weak conformity assessment and certification system is a hindrance to regional and international trade in agricultural commodities.

1.2 Government Policy Framework

Uganda Vision 2040 envisages *a transformed Ugandan society from a peasant to a modern and prosperous country within 30 years*. The goal is to change the country from a predominantly low income to a competitive upper middle income country within 30 years.

The agriculture sector vision, as stated in the National Agricultural Policy, is “*a competitive, profitable and sustainable agricultural sector*” that will be realized by “*transforming the sector from subsistence farming to commercial agriculture*”. The transformation will aim to create employment opportunities and increase household income, while ensuring household food security along the entire commodity value chain of production, processing and marketing.

The overall development and growth of the sector is anchored in three strategic thrusts:

1. Increasing production and productivity with a focus on selected strategic enterprises for each of the ten ecological zones in Uganda;
2. Strengthening capacity in technical areas of agriculture such as seeds, agrochemicals (including fertilizer), water for production, mechanisation, etc., and
3. Strengthening the capacity of government institutions in the sector to efficiently deliver production enhancing and regulatory services necessary for the sector’s growth.

The National Development Plan (NDP)(2010 – 2015) has as its theme, *growth, employment and prosperity*, and recognizes the cardinal role of the agricultural sector for employment creation, poverty reduction and as a base for industrialization. Under the NDP, the agricultural sector is one of the drivers of economic growth. The Development Strategy and Investment Plan (DSIP) is the agricultural component of the NDP and is also Uganda’s strategy for implementing the Comprehensive Africa Agriculture Development Programme (CAADP).

Uganda’s National Agriculture Policy (NAP), which was approved by Cabinet in September 2013, provides the framework in which the development of the seed sector can be anchored. The NAP’s second objective of *increasing incomes of farming households from crops*,

livestock, fisheries and all other agriculture related activities has four strategies on which the seed sector development can be directly linked. These are:

1. Generating, demonstrating and disseminating appropriate, safe, and cost-effective agricultural technologies and research services to enhance production and increase quality of products through access to high quality agricultural technology, agribusiness and advisory services for all categories of farmers;
2. Promoting the growth of a vibrant private sector-led agricultural input supply system that is responsive to farmer and sector needs;
3. Strengthening the certification and regulatory system to guarantee the quality of agriculture inputs at all levels; and
4. Developing and implementing a policy and regulatory framework for biotechnology in agriculture.

The formulation of this seed policy is therefore a key instrument that will contribute to the realisation of the agricultural outcomes envisaged in Vision 2040, NDP, NAP and the DSIP.

1.3 Genesis of Seed Industry in Uganda

1.3.1 Evolution of the Seed Industry

Uganda's formal seed industry has transformed from public to private sector led. The formal seed sector started as a government Seed Scheme in 1968 with support from the British Overseas Development Agency and U.N. Food and Agricultural Organization (FAO) under the ministry responsible for agriculture. The objective was to create a reliable seed supply system for smallholder farmers. To ensure farmers' protection, government introduced strict laws and controls over the seed sector. The transformation to private sector began in the 1990s following government's liberalisation policies and the failure of the public organisations to meet farmers' and government's expectations in seed delivery. The transformation has resulted in a more efficient seed delivery system, but it still lacking is an effective and efficient regulatory system to ensure a compliant and competitive seed industry for local and regional markets.

In parallel to the seed sector evolution, the research system also experienced changes starting with the creation of National Agricultural Research Organisation (NARO) in 1992 followed

by the establishment of the National Agricultural Research System (NARS) in 2005 with NARO as its secretariat. NARO is the agency of MAAIF responsible for agricultural research and its role in the seed sector will continue to variety development and production of basic seed.

1.3.2 Overview of Seed Systems in Uganda

Uganda has two seed systems. The first is the **informal seed system** that makes up 87% of the seed planted in Uganda. It is supplied by home saved seed achieved through selection and preservation of previous harvests of crops that mainly meet communities' food requirements. These are mostly self-pollinated crops such as millet, legumes and vegetatively propagated crops such as sweet potatoes, cassava and bananas.

Access to these seeds and planting materials is through community exchange and to a limited extent selling. Women play a pivotal role in this system, including in variety selection, multiplication, seed conditioning and seed marketing, and contribute significantly to food production. The informal seed system is also the oldest seed system in Uganda and has been useful for domestication and conservation of important crops for food over the generations.

This system is usually unregulated. However, the informal seed system is being progressively improved through creation of seed schemes for villages and farmer's groups, participatory breeding and local seed businesses with support from NGOs, NARO, and the extension service, each of them with their particular seed standards, largely based on local quality control and trust. These improvements also include local community activities in breeding of traditional varieties. Transformation of the informal seed sector into a viable commercial seed sector must recognize the unique constraints of all categories of producers including women in ensuring their acceptance and use of quality seed.

In addition, the informal seed system covers a transitional system where seed and planting materials are accessed from both the community and from the research institutions, for improved varieties, either directly or through the extension service working with farmers' groups. This system has contributed to adoption of improved varieties of groundnuts, soybean, beans, sorghum and cassava in specific agro-ecological zones. Under this system, local seed businesses have emerged producing and selling seeds in the local village markets.

The second seed system is the **formal seed system**, which comprises registered seed merchants (a company, an individual, a cooperative or a farmer association) producing, conditioning, distributing and marketing improved seed from released varieties.

This system currently focuses mainly on hybrids and cross pollinated crops like maize, sunflower, sorghum and a few self-pollinated crops like beans and soybean. The formal market share is estimated at about 13% of planted seed. The formal seed supply system is regulated by a national regulator, the National Seed Certification Service (NSCS), from seed production through to seed certification, but systemic weaknesses result in ineffective monitoring of field production and seed conditioning for quality control.

The formal system is composed of 23 registered seed companies producing an estimated 12,000 MT. Seed distribution in the local market is carried out through an extensive agro dealers' network. The formal system also covers seed trade, including imported seed such as vegetable seed for the domestic seed market, and seed exports to regional markets.

The two seed systems have been co-existing. The emergence of the transitional system is an important aspect of seed sub-sector development and addresses the needs in Uganda.

1.3.3 Seed Classes in Uganda

Under this policy, the seed classes and their description shall be as follows:

Quality seed is seed produced for the purpose of being seed and meeting the minimum standards of the class for which it is produced.

Breeder seed is seed of a particular variety produced by the breeder or maintainer (owner) of the variety or his/her agent, under the plant breeder's or maintainer supervision, which is the source of the initial and recurrent increase in seed production of the variety. Breeder seed is produced both in formal and informal seed systems.

Basic seed is seed produced from breeder's seed under the supervision control of the plant breeder or his/her agent. Basic seed is produced both in formal and informal seed systems.

Certified seed is a class of seed produced under a certification programme from basic seed and can be of two generations. Certified seed is produced in the formal seed systems.

Quality Declared Seed (QDS) is a seed class created by FAO. It is seed produced from (a) basic or certified seed or (b) from QDS that has been officially controlled. The National Seed Regulations will provide for adapted seed classes such as QDS and specific National List requirements for traditional and participatory bred varieties. The NSCS will also provide adequate training and licensing in seed quality control so that local farming communities can formally access quality controlled seed from neighbouring licensed seed merchants. Currently QDS is not recognized in Uganda but this policy provides for its recognition and regulation.

Standard seed is a recognised seed class in the Seed and Plant Act of 2006. It applies to emergency situations during which there is a shortage of quality seed in the market.

Each seed class serves its own purpose. Certified seed is mainly produced by seed companies and addresses the specifications of hybrid seed and cross pollinated crops, while QDS is oriented towards the local seed businesses and farmer groups producing and marketing seed. Crops under this class are mainly self-pollinated varieties and vegetatively propagated crops.

Although not recognised in the Seed and Plant Act of 2006, truth-in-labelling is applied to exotic vegetable seed. This seed is imported into Uganda.

1.4 Challenges and Opportunities

1.4.1 Challenges

Lack of a Seed Policy to Guide the Development of the Seed Sector. Uganda has never had a seed policy. The colonial administration regulated the seed sector through Acts and Ordinances and the first legislation on Plant Seed, designed to prevent importation of cottonseed, was made in 1908. This was followed by a comprehensive Act, the Plant Protection Act/Ordinance No. 11, which came into force in 1937. Post-independence governments have regulated seed quality and safety through the ministry responsible for the agricultural sector. Therefore, there is need to develop a seed policy that provides the legal

framework for seed quality control and enforcement to regulate the seed sector in addition to the vision for the development of the seed sector.

Inadequate Research and Development in Seed. Uganda's investment in seed research and development is inadequate and largely focussed on the formal seed systems. This is true for strategic to adaptive research and for variety maintenance and multiplication of adequate breeder and basic seeds for seed producers in the different seed systems. Insufficient national funding for research is one of the contributory factors. Without vibrant on-going research, the seed sector cannot make substantial progress.

Shortage of Certified Seed. The availability and utilisation of certified seed in Uganda is low, estimated at 13%. This is attributed to insufficient quantities of basic seed that seed companies require to produce certified seed; lack of an efficient distribution system to deliver seed to farmers in a timely manner; lack of capital for farmers, in particular women farmers, to purchase certified seed of available varieties; limited exposure of farmers to the performance of certified seed and hence low demand; and loss of trust in certified seed due to counterfeit/ fake seed distribution. To address the shortage of certified seed, it is crucial to avail to seed producers' sufficient quantities of basic seed, to enable them to increase the quantity of certified seed.

High Prevalence of Counterfeit Seed. The seed sector is faced with low quality seed which partly can be attributed to inefficient field supervision and inspection services in seed production, conditioning, testing, packaging and labelling by NSCS whose capacity is limited by resource constraints. This is compounded by lack of a system to trace the origin and movement of seed to the farmer. NSCS finds it difficult to offer effective supervision without sufficient resources, leading to fake and uncertified seed on the market. However, seed production companies and seed merchants take primary responsibility over the quality of seed. It is their individual and collective responsibility to observe good business practices such as establishing in built internal quality control systems within companies, under their apex national organisation, Uganda Seed Traders Association (USTA). Rampant counterfeit seed in the country is the main disincentive for the seed industry to invest in higher production levels and marketing systems.

Shortage of Seed Scientists. Uganda does not have enough seed scientists to guide the development of a competitive seed sector. This is true in both the public and private sector. There is need to encourage tertiary education and training institutes teaching agricultural sciences to introduce courses in seed systems and technology in the medium to long-term. In the short run, diploma and degree graduates of agricultural sciences should be trained to address the shortage of seed scientists.

Inadequate Capacity for Effective Seed Certification and Inspection Services. The institutional setup and capacity of NSCS is beset with many challenges. The Service has inadequate staff levels which cannot perform NSCS functions to the required expectations. The system currently in place for testing and releasing new varieties to meet needs of the farmers is time consuming and expensive. Further, NSCS has inadequate infrastructure and utilities at the seed laboratory premises; as a result, the government seed laboratory is not accredited by the International Seed Testing Association (ISTA). The difficulty in obtaining ISTA accreditation relates to lack of facilities, staff, and an incomplete Quality Management System (QMS). Currently, Uganda has only one private laboratory with ISTA accreditation.

Moreover, while a regulatory framework was adopted in Seed and Plant Act of 2006, it has not been fully implemented. The Act allows for accrediting third-parties, including private sector actors, to perform certain certification functions; yet this has not been operationalized. Resources are required to implement all the elements of the regulatory framework, and to initiate a legal instrument for the protection of land races that is not provided for under the existing legislations whose seed production is currently not controlled.

Lack of Protection of the Local Communities Intellectual Property Rights. Uganda does not have a law that protects the local community's intellectual property rights over the traditional varieties they have bred, as endorsed by the Ugandan government under the Swakopmund Protocol on the protection of local knowledge. Uganda has also endorsed the Nagoya Protocol on access and benefit sharing of the convention of biological diversity.

Institutional Setup. Analysis conducted while preparing the DSIP NON-ATAAS Framework Implementation Plan for Seed and Planting Materials concluded that the structure and status of the NSCS is inadequate for it to fulfil its mandate and functions. Accordingly, it was agreed that the NSCS be transformed into a semi-autonomous authority to enhance its

effectiveness and efficiency. The authority should get a government vote to implement the policy.

During the formulation of this policy, MAAIF noted that the development and regulation of the seed sector is linked to the implementation of other laws and functions falling within the mandate of the Department of Crop Inspection and Certification (DCIC), including the 2006 Seed and Plant Act, the 2006 Agricultural Chemonics (Control) Act, the 2014 Plant Variety Protection (PVP) Act, and Phytosanitary services, etc. To ensure effective, efficient and coordinated implementation of these laws, policies, and functions under DCIC, the Ministry has proposed the creation of a semi-autonomous umbrella agency responsible for all these functions and laws. This is an action at a higher level than the National Seed Policy and the Ministry will therefore submit its proposal under appropriate framework.

Climate Change. The impacts of climate change on agricultural production include more erratic rainfall, more frequent droughts and floods, and higher temperatures resulting in higher incidences of insects and diseases on plants and consequent loss of yield. This requires more attention for plant breeding and better use of plant genetic resources to produce new improved environmentally friendly (climate smart) varieties.

1.4.2 Opportunities

Availability of Local and Regional Seed Markets. Like Uganda, its neighbouring countries also have deficits in their seed requirements. This provides an opportunity for Uganda to increase its seed production to meet gaps in seed supply.

Favourable Production Conditions. Uganda has favourable conditions for seed production. With two rainy seasons, varying altitudes, fertile soils, and abundant water, it is able to produce more seed than its neighbours.

Enabling Policy Environment. The Government's policy frameworks, i.e. Vision 2040, NDP, DSIP and NAP, including privatisation and liberalisation create a conducive environment for private sector investment into a profitable national the seed industry that meets domestic demand and allows for exports.

1.5 Justification for a Seed Policy

1.5.1 Population Growth and Food Requirements

Uganda needs to provide for her growing population, which requires more and diverse foods with higher nutritional value. While the population is growing, per capita food production has been on the decline since early 1970s and per capita land has reduced from 4ha in 1948 to 0.63 ha in 2010. In addition, crop yields in Uganda are far below those achieved on research stations and during research-managed field trial, partly due to the use of poor and uncertified seed that dominates Uganda's seed market. The seed policy will help to streamline the seed market and encourage all stakeholders to embrace the use of certified seed.

1.5.2 Globalisation, Reduction of Tariffs and of Non-Tariff Barriers

Uganda's seed industry has been growing despite its infancy. The seed sector has a range of stakeholders, which include breeders, government agencies involved in policy formulation and regulation; private sector companies, farmers, donors, NGO's and other civil society organizations. The private sector has been the engine of growth in the seed industry, but the industry requires coordination and regulation to provide for a competitive evolution, especially to contribute to the export sub sector through regional seed exports.

Successive international trade negotiations have progressively reduced import tariffs, but non-tariff barrier restrictions have emerged to limit cross border trade. In order to address constraints of globalization, and to effectively and competitively participate in global seed trade, Uganda needs to ratify and seek membership to all relevant seed trade related protocols such as ISTA for laboratory issuance of Orange certificates; Organization for Economic Cooperation and Development (OECD) for varietal field seed certification schemes and consider appropriate organisation or system for the protection of new varieties of plants.

There is need to put in place a comprehensive seed policy, with an institutional coordination framework inclusive of all stakeholders. The seed policy shall address all seed systems and value chains; define roles and responsibilities of the key players as well as articulating their linkages to boost productivity and production to feed the nation and boost export.

2 THE NATIONAL SEED POLICY

The goal of this National Seed Policy is to guide the development and regulation of the seed sector in order to: i) avail safe and high quality seed and planting material to farmers; ii) provide a clear framework for regulation of the seed sector players; and iii) define clear roles and responsibilities for all actors under different seed systems. It also aims to harmonize all seed-related activities in one policy.

2.1 Vision

A competitive, profitable and sustainable seed sector where farmers access affordable quality seed and planting materials.

2.2 Mission

To create a well-regulated seed sector that ensures availability of and access to safe and high quality seed and planting materials under pluralistic seed systems.

2.3 Guiding Principles

The seed policy in Uganda shall be guided by seven principles. These principles are derived from the country's experience and analysis of bottlenecks and opportunities as described in chapter 1. The principles are in line with the National Agricultural Policy and other related policy frameworks and focus specifically on the seed sub-sector within the agricultural sector.

Principle 1: The Government of Uganda is pursuing a well-regulated private sector-led and market-oriented seed sector. The seed sector was for long in the hands of public sector for seed production, plant breeding, processing and marketing. For consistency with the government's privatisation policy, commercial activities of seed production, conditioning and marketing, shall be the responsibility of the private sector. The government's role shall be to provide an enabling environment to promote growth for all categories of private sector entities including large national seed companies, small local enterprises and private seed service providers and protect consumers (farmers). This includes providing and enforcing regulations for the seed sector. Production of breeder and basic seed will remain a responsibility of the breeders whether private or public. Under this policy, private plant breeding activities will be encouraged. When desired, the government will support private plant breeding through existing or new instruments and availing plant materials for breeding purposes.

Principle 2: The Government of Uganda will pursue a viable pluralistic seed sector. To attract more players and address the huge deficit of quality seed in the country, government shall recognize multiple seed systems comprising a formal and the informal seed systems. The informal seed system will cover the farmer saved seed system, non-market community based seed systems, and emerging transitional local seed businesses at community and agro-ecological zone levels. Formal seed systems include private seed companies, which may operate at national and international levels producing certified seed, and transitioned local seed businesses which are formally registered. Government will provide an enabling environment for each seed system that matches its characteristics.

Principle 3: Transforming informal seed systems into recognised and regulated systems. The informal seed system supplies the majority of Uganda's seed, providing more than 87% of the national seed requirement. In addition, the informal seed system is strategically positioned to conserve biodiversity of land races and neglected varieties through communities' preservation systems for food security requirements and food safety. The informal seed system will continue to be a main source for dissemination of non-commercial seed varieties and planting materials. Formalisation of the informal seed system through recognition and regulation will ensure that biodiversity and seed distribution channels are maintained for non-commercial varieties with high nutritional and food security value.

Seed producing groups can transit to the formal system. When ready to transform through registration of their businesses/associations and listing of varieties they are dealing in, these producers will be formally recognized and be brought under appropriate regulatory mechanisms to enhance commercialisation of the agricultural sector and food security through availability of high quality seed and protection of biodiversity.

Principle 4: Protecting plant breeders' rights to foster innovation in the seed sector. Breeders include both public and private plant breeding programmes and farmers who register their varieties for protection. Laws covering variety development and plant variety protection shall protect the rights of plant breeders and the local communities' traditional breeding. Putting in place relevant plant breeder protection law and regulations will foster innovation in variety development. Protection of rights credits the breeder for the varieties developed and provides an incentive system to release more varieties adapted to output

market demands and suitable to address climate change. Farmers will be allowed to save, use, exchange and share farm produce of all protected varieties.

Principle 5: Enhancing access to breeder and basic seed. One of the major bottlenecks in the production of quality seed is the scarcity of breeder and basic seed. The Government is responsible for creating an enabling environment for sufficient breeder and basic seed to be available. One way is to allow private sector to breed and produce breeder and basic seed. Private seed companies and QDS producers shall have access to basic seed and where they have capacity, to pre-basic seed under the supervision of the breeder. The NARS shall ensure maintenance of sufficient stocks of breeder and basic seed for various crop varieties to be sold to seed companies and QDS producers and for dissemination of those varieties without market value. In cases where private sector has developed or acquired a variety, it shall maintain sufficient breeder and basic seed.

Principle 6: Enhancing productivity in farming systems. To enhance productivity, availability of good quality seed from all seed systems is essential. Once seed is available, it also needs to be accessible, affordable and preferred by farmers. Furthermore, awareness raising, dissemination of seed related productivity and profitability information are key to increasing uptake of quality seed by farmers and to enhancing productivity. Extension services and distribution networks will be strengthened to increase adoption of improved varieties and the use of quality seed.

Principle 7: Providing services to seed value chain actors through a devolved and privatised system. In line with Government's decentralisation policy and liberalisation policy, the support structure to the seed sector will be decentralised to zones or districts and privatised where possible. Authorisation of seed inspectors and accreditation of decentralised inspections centres, such as at zonal and/or district level as pathways to increase the quantity of quality of seed in the country. In particular, local governments shall be encouraged to develop seed ordinances derived from the seed policy and regulatory frameworks to guide seed production, inspection, conditioning, packaging and seed marketing. Seed companies and private laboratories will be accredited. In the accreditation system, seed companies will be allowed set up their own internal quality control system, including a private seed laboratory. The internal quality control system should be in accordance accreditation conditions agreed with the government. In addition to the national level registration, agro

dealers shall also be locally licensed and inspected. The National Seed Authority and other relevant agencies of government will build the capacity of key actors to enable them undertake their mandates under the seed regulatory framework.

3 SEED SECTOR DEVELOPMENT

To realise the vision and mission of the seed policy, Government will support, promote, and regulate all segments of the seed value chains. To this end, specific objectives and strategies have been formulated covering research and development, protection of plant genetic resources, seed production and conditioning, seed marketing and distribution seed quality control, seed science and knowledge.

3.1 Research and Development (R&D) of New Varieties

Objective: To generate new commercial and food security varieties. Strong research support is indispensable for seed sector development and increased agricultural productivity. Both the public and private sectors are involved in market research and variety development. The roles of these organisations shall be clearly defined to foster the development of new varieties for the market and suitable and safe varieties for food security.

Strategies:

- Supporting and promoting development and use of new varieties for production and marketing of improved varieties and quality seed;
- Compensating intellectual property rights of plant breeders as provided for under the laws covering breeders' rights;
- Supporting private companies to breed their own varieties;
- Monitoring of variety maintenance and purity by NSCS;
- Supporting the development of food security crop varieties through public breeding programmes
- Strengthening modalities for coordination of public and private research and extension service providers for effective transfer and dissemination of seed related technologies;
- Continuing to review variety evaluation, release and registration processes to promote regional harmonisation and effective release and popularisation of new varieties;

- Promoting QDS producers access to parent seed for crops and varieties to be subsequently multiplied for seed production;
- Supporting Ugandan breeders to source genetic materials from international breeding institutes and /or from other countries;
- Enhancing the cooperation with international crop development centres including the Consultative Group for International Agricultural Research (CGIAR) to access new varieties;
- Developing a system which enables different rights on public varieties through exclusive rights, shared rights or any other inclusive system that is deemed most beneficial to increase the adoption rates of new varieties by farmers.

3.2 Conservation of Plant Genetic Resources

Objective 1: To sustainably utilise, breed and protect Uganda’s national plant genetic resources from destruction by natural and human activities and unauthorised access. Viable and effective germplasm acquisition, collection, multiplication, conservation and utilisation support sustainable research and development, however degeneration of plant biodiversity and over exploitation has led to depletion of some plant species.

Strategies:

- Providing for exchange of germplasm for crop research and development purposes, while avoiding introduction of seed borne pests and diseases and undesirable plant genes that could affect agricultural production and productivity;
- Ensuring that the National Agricultural Research System (NARS) maintains stocks necessary for the conservation of introduced and local plant genetic material and improved varieties to provide for seed security and to mitigate against natural disasters;
- Promoting and building capacity of farmer and community groups including those led by women or youth to conserve crop varieties that have a high food security value.

Objective 2: To promote the conservation of the local varieties, indigenous knowledge, and practices through community genetic resource management. Variety preservation takes place from one farming generation to the next. This is traditionally the role of women. Many of the traditional practices are no longer prominent in communities yet they provide

low cost methods of seed selection and preservation, using non-mechanical mechanisms. Indigenous crops and trees are important for household food security yet they are not protected through conservation and these resources have come under pressure and need protection and conservation for future use in breeding and other innovations.

Strategies:

- Supporting the development of community seed banks;
- Supporting the mapping and creation of variety registers within communities and at national level;
- Promoting the protection and preservation of indigenous knowledge of the local varieties and effectively protecting the intellectual property rights of local communities on traditional varieties and traditional breeding under a new legal framework.
- Supporting promotion of crop diversity through custodian farmers;
- Creating awareness on conservation varieties.

3.3 Seed Production and Conditioning

Objective 1: To multiply and market high quality seed under the formal seed system.

Seed vigour is highly dependable on the way in which seeds are produced and stored. To avail high quality seed to farmers clear regulations and enforcement systems are vital.

Strategies:

- Ensuring enforcement of all regulations regarding seed production, storage processing, chemical applications and residues on the Ugandan market to create an international reputation for the country as a good source of seed; and
- Building and strengthening existing seed certification system and quality control for seed production, conditioning, and testing for locally produced and imported seed.

Objective 2: To increase the availability of and access to quality seed of preferred varieties to complement those produced under the formal seed system.

A new seed class will be created to address shortage of quality seed for food security crops. This seed class will be promoted together with awareness raising about the different seed classes in Uganda.

Strategies:

- Promoting and building capacity of farmers, community groups and local seed businesses to produce and market quality controlled seed with the focus on crops and varieties that have a high food security value;
- Putting in place new classes of seed such as Quality Declared Seed.
- Supporting and strengthening the linkage between seed research and plant breeding programs and farmer groups producing and marketing these crops;
- Promoting participatory research and variety improvement to increase productivity and market development of farmer preferred varieties;
- Providing for emergency seed supplies in case of localised or national calamities to ensure continued availability of good quality seeds;
- Promoting awareness on the different seed classes in Uganda via tools that effectively reach all actors in the informal seed system including women;

Objective 3: To enhance the production of quality seed within the informal system. Farm productivity will be increased through the use of quality seed in the informal system. These varieties have existed for a long time in communities and are either orphaned or neglected by formal research and breeding programmes. Some of these crops have been locally domesticated under specific environments and require quality improvement of the seed.

Strategies:

- Promoting participatory breeding and plant variety selection;
- Promoting the development and use of locally adapted indigenous varieties, to provide for national food and nutrition security;
- Promoting local seed selection and preservation methodologies;
- Promoting the introduction of improved affordable and gender friendly technologies to support seed multiplication and post-harvest handling;
- Facilitating youth, women and other vulnerable groups to strategically intervene in enhancing availability of quality seed.

3.4 Seed Distribution and Marketing

Objective 1: To increase the uptake of certified and QDS seed by farmers

Strategies:

- Encouraging seed companies to market seed in appropriate and affordable packages to promote the use of certified seed by all farmers;
- Strengthening extension services to promote the use of quality seed
- Supporting seed marketing outlets in remote areas.
- Supporting farmers' adoption and use of seed of improved varieties and guiding this transformation to increased use of these varieties with the ultimate end of adopting certified seed;
- Supporting non-market seed distribution mechanisms for informal seed system including emphasis on networks for seed distribution.
- Strengthening modalities for coordination of public and private seed extension services and other support services to the seed value chains; and ensuring that relief seed supplies are sourced from registered seed producers only and that they are of known quality.

Objective 2: To enhance Uganda's competitiveness in regional and international seed trade. Given Uganda's competitive advantage in the agricultural sector, it is vital that it develops quality seed products for the regional and international markets.

Strategies:

- Enhancing the capacity of National Plant Protection Organization (NPPO) to issue reputable plant health certificates;
- Reducing processing time including providing one-stop service centres for issuance of export and import documentation and control or provision of online system for expediting the issuance of SPS certificates;
- Providing for harmonization of national regulations with regional and international conventions and protocols on seed production, certification and trade, including inter-agency seed certification, use of standard protocols on variety protection, common quarantine-pest list, variety catalogue, import/export documents;
- Enhancing capacity in terms of personnel and provide for a minimum facilities at high risk entry points (laboratories, visual inspection kits, refrigerators);

- Promoting awareness of regionally harmonized seed standards.

3.5 Seed Quality Control

Objective1:To ensure quality controlalong the formal seed value chain. It is important to ensure that quality and safe seed is available in the market to build customer confidence and satisfaction.

Strategies:

- Strengthening and enforcing existing seed certification for all seed classes (quality control, seed testing, labelling, etc) for locally produced and imported seed;
- Training and supporting staff of seed companies to undertake internal quality assurance
- Establishing an (semi-) autonomous body for seed regulation and quality control enforcement
- Establishing public/private partnership for seed quality control;
- Establishing procedures for accreditation for field inspection, sampling, testing and labelling;
- Strengthening the quality management systems of seed companies and national seed laboratories;
- Encouraging self-regulationthrough accreditation of certified seed producers and development and sustenance of quality management systems;
- Encouraging all registered seed companies and other seed merchants to join seed associations for purposes of self-regulation to ensure seed quality;
- Providing for accreditation of private laboratories and seed analysts through licensing.
- Supervising and monitoring of the accreditation system by NSCS;
- Develop modalities for seed certification of horticultural crops, industrial crops, forestry and other plant species which have no variety maintenance;
- Strengthening NSCS to enforce truthful labelling of all seed products;
- Setting standards for appropriate packaging materials for various crops in conformity with national and international standards; and
- Establishing a Seed Sector Integrated Information Management System (SSIIMS) and web portal at NSCS to capture and share critical information relating to the seed sector for transparency and accountability.

Objective 2: To ensure quality control along the value chain for Quality Declared

Seed.In order to enhance productivity at farm level good quality seed is the starting point. The QDS class will therefore be regulated through putting in place quality standards.

Strategies:

- Providing for listing of traditional and participatory breeding varieties;
- Registering community seed producers by NSCS through local authorities;
- Supervising and technical backstopping to community seed producers and support to the development of internal seed quality control mechanisms for seed producers;
- Establishing seed traceability system for QDS;
- Establishing a delegated and decentralised system at zonal and/or district level for seed inspection for QDS with NSCS authorised seed inspectors.

3.6 Seed Science and Knowledge

Objective 1: Develop human resource for the seed sector development. To enhance the development of a competitive seed sub-sector, government will support the development of seed scientists and technicians as well to transfer skills and knowledge to all seed systems including the public, private sector, farmer organisations and indigenous community systems.

Strategies:

- Supporting tertiary institutions to introduce and develop seed science based knowledge for building skills and human capacities;
- Supporting the capacity development of NSCS and seed companies in improved production, conditioning, laboratory examination, and storage of seed;
- Supporting the development of seed science centres at public universities for seed research, training and accreditation purposes;
- Providing technical and financial assistance, human capacity development to seed institutions along the seed value chain;
- Training and authorising staff of seed companies to undertake quality assurance and certification.

Objective 2: To enhance equitable benefit sharing in QDS seed marketing by men, women, and youth. Seed production and seed selection of food security crops has traditionally been the role of women. Under the QDS class, farmer organisations are encouraged to market their seed, which makes it a profitable enterprise for both men and women. Positive action will therefore be taken to safeguard the role of women and youth in seed production, enhance their marketing skills and promote income-earning opportunities. Participatory decision making is important in group businesses for long term sustainability.

Strategies:

- Promoting inclusiveness in benefit sharing and marketing through the household approach of gender equity;
- Promoting agricultural extension in agri-business skills and enterprise development for seed business and ensuring women and youth derive equal benefits from this service provision;
- Promoting adult literacy and seed business skills training to enhance women participation in seed business.

4 INSTITUTIONAL AND LEGAL FRAMEWORK

4.1 Institutional Setup for Seed Sector Governance and Regulation

Efficient and effective seed sector institutions are critical for realising the vision, mission and objectives of the seed policy. To this end, Government will put in place appropriate organizations with strong mandates and ensure that they are adequately resourced to fulfil their roles and responsibilities as envisaged under this policy.

4.1.1 Public Sector Institutional Set Up

Public institutional set up for the seed sector is contained in the Seed and Plant Act (2006). The Seeds and Plant Act has not been fully implemented and some of the required structures are not fully operational. As part of implementation of the seed policy, Government will ensure full implementation of the Seed and Plant Act to allow the development of the Ugandan Seed sub-sector and propose amendments where needed. The roles of the key public sector organisations are elaborated below.

Ministry of Agriculture, Animal Industry and Fisheries (MAAIF). MAAIF as the government Ministry responsible for agriculture shall ensure the operationalization of the National Seed Policy (NSP). A primary element of this is the operationalization of the National Seed Board and providing it with requisite resources to ensure it is functional.

The National Seed Board (NSB). Under the Ministry of Agriculture, its main functions are advising the Ministry on Seed Policy issues and supervising Seed Policy implementation through technical sub-committees. NSB overriding function is to provide regulatory mechanisms to the seed industry. The National Seed Board membership will be reviewed considering the broadened scope of the seed policy compared to the Seed and Plant Act.

National Seed Authority (NSA). The NSCS which is currently a division of the Department of Crop Inspection and Certification of MAAIF will be transformed into an (semi-) autonomous National Seed Authority (NSA) under the oversight of the National Seed Board. When the umbrella regulatory authority is established, NSA will become a sub- set of it. The NSA will recruit and train its human resources, mobilise funding, use locally generated funds and access government funding by direct allocation through a vote function. NSA will be

responsible for all matters related to seed as mandated under the Seed and Plant Act (2006). The NSA will also be the main Agency for the implementation of the National Seed Policy. The success of the National Seed Policy depends on the provision of a sustained capacity building and management development to the NSA. NSA will also provide the necessary training and qualifications in seed quality management to the seed industry, aiming for a balanced public-private partnership system in seed quality control and certification. It shall also establish an integrated information centre for all matters pertaining to seed such as seed data, registers of varieties, seed merchants and repository for all the regulatory frameworks. It shall have a training centre that will generate revenue and accredit some of its functions.

National Agricultural Research System (NARS). National Agricultural Research System (NARS) shall develop new seed technologies. The research and development agenda will be undertaken by both public and private institutions in a harmonized manner. NARS will continue to be the main supplier of breeder and basic seed to seed companies, the maintainer of varieties, backstopping and providing technical advice to extension service and QDS producers. In keeping with the principle of decentralising the delivery of seed sub-sector services, Government will decentralise seed inspection and certification services from MAAIF Head Quarters to zonal centres and districts and establish zonal laboratories at Zonal Agricultural Research Institutes (ZARDIs) and other entities to provide basic services.

Agency Responsible for Extension Services. The Agency responsible for extension will be responsible for the promotion and dissemination of the technologies to the farming community. The Agency and NARO's decentralised structures will play an important role in the support to QDS producers, providing required accredited seed testing facilities and technical support in seed quality control. The seed policy shall support farmer's groups, including those led by women and youth, and village seed schemes to register producers of QDS seed and adopt the use of intermediary organisations, encourage interested farmers to form Quality Seed Growers Associations (QSGA), who will produce crop specific seed for surrounding communities. The QSGAs will lead transformation of the informal seed sector.

Uganda National Council of Science and Technology (UNCST). The Uganda National Council for Science and Technology has, within its portfolio, the mandate to encourage

Agricultural Research and Development in the country. UNCST is responsible for the registration of private research providers, and acts as a forum for discussion of agricultural research related issues, and also provides competitive grants for scientists willing to undertake research programs. Under the Seeds and Plants Act, it is in charge of recommending procedures and protocols to deal with varieties developed through the use of biotechnology.

Universities and Other Institutes. Universities and other institutions that train seed scientists and technologists will play an important role in variety development under the NARS framework and training of seed scientists.

4.1.2 Private Sector Institutional Setup

The private seed sector plays a critical role in the seed sector and shall continue to do so in promotion of the technologies developed by public institutions through commercial seed production, marketing and distribution. Most of the commercial enterprises involved in the seed industry operate under national apex organisations at various levels of the seed value chain including production, marketing and distribution. Where they have capacity, and as provided for under the NARS Act, the private sector will also develop technologies/new varieties. Private seed associations at various segments of the value chain will ensure their members sign up to and practice a code of conduct for self-regulation.

4.1.3 Institutional Interrelationships

The private sector institutions representation in the National Seed Board and ad-hoc committees shall be increased for a bigger involvement in the implementation and monitoring of this National Seed Policy. Coordination and inclusiveness will be promoted through seed related forums whereby a broad range of stakeholders are able to interact and recommend areas of attention to the national seed board.

4.2 Seed Law and Governance

As a regulated industry, the seed sector requires relevant laws and regulations to ensure compliance, orderly development and fair play among seed sub-sector stakeholders and

protection of farmers (consumers). Government will therefore develop and enforce appropriate laws, regulations and protocols for the sub-sector.

4.2.1 Seed and Plant Act and Regulations

In 2006, Uganda enacted the Seed and Plant Act for this purpose. However, the law has not been fully operationalized. The regulations to implement the law have not been put in place. Also one of the key organs of governance, the National Seed Board, is not yet functional. Given the pluralistic seed system provided in this policy, Government will review the existing legislation and regulations to ensure all the systems are covered with relevant regulatory instruments. In particular, it will be necessary to include in the regulations the QDS class of seeds and provide for farmers to register their traditional varieties that meet the definition of seed. Policy actions required by Government in respect of the seed law and governance are:

- Finalize and enforce the seed regulations;
- Constitute, inaugurate and ensure a functional National Seed Board; and
- Provide a platform for involvement of stakeholders in seed strategy development, review of seed acts and regulations and other institutions.

4.2.2 Plant Variety Protection

The Plant Variety Protection Act (2014) recognizes and protects the rights of breeders over plant varieties developed by them. It also provides for other related and incidental matters including institutional mechanisms for effective implementation of the law. The key aim of the law is to create incentives for plant breeders to develop new plant varieties. This law will serve as one of the instruments for realizing the mission of the seed policy. To achieve this, the regulations required to operationalize the PVP Act will be expeditiously formulated and implemented as well as other provisions of the legislation.

4.2.3 PGRFA and Benefit Sharing Legislation

As a contracting party to the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) and in fulfilment of one of its obligations under the treaty, Government will take proactive steps to protect and reward Uganda's farmers through ensuring protection and promotion of farmer's rights and realization of their full benefits. The rights that will be protected include: saving, using and exchanging seed; protection of

traditional knowledge; equitable participation in sharing benefits; and participation in decision-making at national and international levels in matters pertaining to conservation of plant genetic materials. To this end, Government will formulate a policy and enact a law and establish an institutional mechanism for the protection and promotion of farmers' rights regarding their plant genetic resources and indigenous knowledges as well as community empowerment and gender equity.

While the Access and Benefit Sharing (ABS) legislation is in place, it needs to be reviewed and harmonized with international treaties particularly the Nagoya Protocol and ITPGRFA. The goal of the legislation will be to ensure access and equitable sharing of PGRFA.

4.2.4 Regulation of Biotechnology in Variety Development

Foods produced through application of biotechnology have health benefits including, improved food quality in terms of protein content, desirable substances essential in decreasing ailments, like allergens, heart and kidney disease. Despite the potential benefits of these foods in addressing agricultural commercialisation and food security, not much research has been done on their impact on the environment, biodiversity and human health. To optimise their benefits, genetically modified seeds shall be regulated and controlled. The overall legal framework for achieving this is the National Biotechnology and Biosafety legislation which is under consideration in Parliament. Its purpose is to ensure the safe development and use of biotechnology and provide mechanisms to regulate research, development and use of genetically modified organisms. As a key institution identified for implementing the law, MAAIF will develop appropriate regulations for the seed sector. The regulations will among other subjects provide for:

- Proper labelling to inform the public on benefits as well as risks associated with genetically modified seeds as a “right to know basis;
- Developing appropriate protocols for the introduction of genetically modified seeds;
- A framework for safe environment and protection of local varieties from contamination by genetically modified seeds; and
- Establishing an effective monitoring system to monitor and provide control measures for genetically modified seeds.

Furthermore, it will be necessary to undertake on-going research on the impacts of GMOs on biodiversity and build on human capacity and physical facilities for detection of genetically modified seeds.

4.3 External Trade in Seed

Uganda has signed a number of agreements and protocols with regional and international organisations. These protocols open opportunities for trade (import and export) in seed. To comply with these agreements Government of Uganda will:

- Strengthen the system of issuing import and export permits according to the relevant laws;
- Harmonize with EAC and COMESA treaties standards and regulations to ease movement of seeds and plant materials;
- Establish a robust database on seed market for traceability of imports and exports as well as local production and utilisation; and
- Minimize non-tariff barriers.

4.4 Accreditation and Memberships of Organizations

Accreditation and membership to international and regional organizations is essential for Uganda to participate in seed trade, benefit from capacity building and access materials for variety development and protection of its genetic resources.

Two organizations where accreditation is important are the International Seed Testing Association (ISTA), with regard to laboratories, and OECD seed schemes with regard to standards for the Varietal Certification of Seeds vital for access to international trade. Uganda's NSCS is accredited to issue OECD seed varietal certification labels. This has contributed to quality improvements and helped standardize the seed quality control under the NSCS. Uganda is a member of ISTA, but the government laboratory has not yet attained ISTA accreditation. To do so, it is necessary to first upgrade the local seed testing infrastructure especially laboratories and put in place management systems.

4.4.1 Regional organizations

East African Community (EAC). The seed relevant aspects are Common Agricultural Policy and Agreements on Harmonization of Seed Policies and Regulations in East Africa.

Common Market for East and Southern Africa (COMESA). There is a draft seed trade harmonization regulations (2012) and seed standards and common catalogue.

African Regional Intellectual Property Organization (ARIPO). The major objective of ARIPO is to pool resources of its Member States together in solving Intellectual Property (IP) related issues. This is achieved by harmonizing IP Laws and coordinating IP activities among the Member States; centrally handling the matters related to IP including granting and registration of IP rights on behalf of the Member States; and dissemination of information relating to IP.

4.4.2 International organizations

World Trade Organization (WTO). As a result of its membership in the WTO, Uganda is obligated to the following: agreement on the application of Sanitary and Phytosanitary (SPS) measures and National Seed Authority (NSA) will coordinate (for non-Phytosanitary aspects) with National Plant Protection Authority (NPPO) on import-export requirements for seeds and planting materials.

Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement. Under this agreement, Uganda is required to protect plant varieties. The Plant Variety Protection Act passed by Parliament in December 2013 is a fulfilment of this agreement.

UN Food and Agriculture Organization (FAO). Arising from its membership of FAO, Uganda is affiliated to the following agreements.

- **International Plant Protection Convention (IPPC).** This deals with standards and international cooperation for the implementation of Phytosanitary measures under the SPS Agreement. See above.
- **International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).** This deals with implementing the Convention on Biological Diversity (CBD)-Nagoya protocol for PGRFA, addressing the conservation and sustainable use of

PGRFA and the fair and equitable sharing of the benefits arising out of their use. The commitments under the treaty fall under the NARO-PGR Authority.

- **Protocols and standards for seeds and planting materials.** This is not applied in Uganda at the moment but under this policy the following will be adopted: Quality Declared Seed (QDS) and Quality Declared Planting Material (QDPM).

Uganda shall maintain its membership of these regional and international organisations to enhance the opportunities for trade, capacity building and protection of its generic resources.

Finally, in order to implement the TRIPS Agreement for plant varieties particularly with respect to standards and international cooperation, Uganda has the option of joining the **International Union for the Protection of New Varieties of Plants (UPOV)**. Uganda is not yet a member but will review all options at its disposal for complying with the TRIPS agreement and take appropriate decisions.

4.5 Implementation and Funding

The instruments for implementation of this policy shall include the Seed and Plant Act and the seed regulations which are under development. In addition, Government will formulate a comprehensive strategy to transform the seed the sector into a competitive, profitable, equitable and sustainable sector.

To address the current challenges of funding, Government will ensure adequate and predictable funding for implementation of the seed policy. The sources of funds will include government appropriation and internally generated resources such as registration and licensing fee, inspection fees, testing fees and fines which the institutions, given its semi-autonomous status, the NSCS will use the revenue generated at source. Other sources shall include private sector and development partners' contributions.

4.6 Monitoring System and Policy Review Cycles

The implementation of this policy will be monitored at various levels. The Ministry level will track broad high level indicators and performance issues, National Seed Board will have

primary mandate for monitoring and evaluation of the national seed policy while the National Seed Certification Service will deal with strategies and activities. Other stakeholders will monitor and report on activities under their mandates. To guide the monitoring and evaluation of the policy, indicators will be developed and agreed for each level. Periodically stakeholders will be brought together to reflect on the implementation of the policy and make input on improvements. Another important tool to aid monitoring will be the Uganda Seed Sector Integrated Information Management System (USIIS) and web portal that will be established by the NSCS.

Given the dynamic policy environment both within and without the country, region and globally, it is imperative to be responsive to this wider policy context. This will be addressed through periodic review of the policy. As the policy is implemented through a seed strategy, issues that arise will be dealt with by revising the strategy which has a 5-year cycle. The policy as a whole shall be reviewed on a cycle of 10 years.

5 CONCLUSION

The National Seed Policy aims at boosting the seed sub-sector in Uganda. It covers all seed systems to ensure the growth of the formal seed system while uplifting marginal communities that are living in subsistence as their traditional varieties are recognised and formalised to generate food security and incomes for them and maintain biodiversity. The policy recognised the need for different seed classes and comprehensive quality assurance mechanisms to increase availability of quality seed in the country. Through the implementation of this policy outstanding regulatory and institutional reforms will be carried out. At the same time, capacity of both public and private organisations will be built to ensure efficient and effective fulfilment of functions and mandates. The public research shall remain an important source for new varieties addressing local needs and a repository of plant genetic resources. As the policy actions are implemented, the seed sector is expected to become more responsive to farmers needs and ensure competitiveness in both the domestic and regional seed markets. Government shall continue to provide an enabling environment for the seed sub-sector to promote private sector investments and seed trade.